

## PATENT APPLICATION

Sheet 1 of 4

FORM PTO-1449

LIST OF PATENTS AND PUBLICATIONS FOR  
APPLICANT'S INFORMATION DISCLOSURE  
STATEMENT

(Use several sheets if necessary)

ATTY. DOCKET NO.

200311116-1

APPLICATION NO.

10/734713

CONFIRMATION NO

APPLICANT

Raymond G. Beausoleil et al.

FILING DATE

12/12/2003

GROUP

Art Unit

2129

## REFERENCE DESIGNATION

## U.S. PATENT DOCUMENTS

| EXAMINER<br>INITIAL |    | DOCUMENT<br>NUMBER | PUBLICATION<br>DATE | NAME | Pages, Columns, Lines Where<br>Relevant Passages or Figures Appear |
|---------------------|----|--------------------|---------------------|------|--|
|                     | 1A |                    |                     |      |  |
|                     | 1B |                    |                     |      |  |
|                     | 1C |                    |                     |      |  |
|                     | 1D |                    |                     |      |  |
|                     | 1E |                    |                     |      |  |
|                     | 1F |                    |                     |      |  |
|                     | 1G |                    |                     |      |  |
|                     | 1H |                    |                     |      |  |
|                     | 1I |                    |                     |      |  |
|                     | 1J |                    |                     |      |  |
|                     | 1K |                    |                     |      |  |

## FOREIGN PATENT DOCUMENTS

|  |    | DOCUMENT<br>NUMBER | PUBLICATION<br>DATE | NAME OF PATENTEE<br>OR APPLICANT | Pages/Columns/Lines Where<br>Relevant Passages/Figures Appear | Check if<br>Translation<br>attached |
|--|----|--------------------|---------------------|----------------------------------|---|-------------------------------------|
|  | 1L |                    |                     |                                  |   |                                     |
|  | 1M |                    |                     |                                  |   |                                     |
|  | 1N |                    |                     |                                  |   |                                     |
|  | 1O |                    |                     |                                  |   |                                     |
|  | 1P |                    |                     |                                  |   |                                     |

## OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

|     |    |  |
|-----|----|--|
| mtt | 1Q | Benson, Oliver et al., "Regulated and Entangled Photons from a Single Quantum Dot," Physical Review Letters, Vol. 84, No. 11, Pages 2513-2516 (March 13, 2000).                |
| mtt | 1R | Bouwmeester, Dik et al., "Observation of Three-Photon Greenberger-Horne-Zeilinger Entanglement," Physical Review Letters, Vol. 82, No. 7, Pages 1345-1349 (February 15, 1999). |
| mtt | 1S | Chen, Kay-Yut et al., "A Quantum Treatment of Public Goods Economics," Quantum Information Processing, Vol. 1, No. 6, Pages 449-469 (December 2002).                           |

EXAMINER

MAI T. TRAN

DATE CONSIDERED

2/28/06

**PATENT APPLICATION**

Sheet 2 of 4

|   |  |                                      |                  |
|---|--|--------------------------------------|------------------|
| <b>FORM PTO-1449</b><br><br><b>LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT</b><br><br>(Use several sheets if necessary) | ATTY. DOCKET NO.<br><b>200311116-1</b> | APPLICATION NO.<br><b>10/734 713</b> | CONFIRMATION NO. |
| APPLICANT<br><b>Raymond G. Beausoleil et al.</b>  |  |                                      |                  |
| FILING DATE<br><b>12/12/2003</b>  |  | GROUP <b>Art Unit 2129</b>           |                  |

**REFERENCE DESIGNATION U.S. PATENT DOCUMENTS**

| EXAMINER INITIAL |    | DOCUMENT NUMBER | PUBLICATION DATE | NAME | Pages, Columns, Lines Where Relevant Passages or Figures Appear |
|------------------|----|-----------------|------------------|------|---|
|                  | 2A |                 |                  |      |   |
|                  | 2B |                 |                  |      |   |
|                  | 2C |                 |                  |      |   |
|                  | 2D |                 |                  |      |   |
|                  | 2E |                 |                  |      |   |
|                  | 2F |                 |                  |      |   |
|                  | 2G |                 |                  |      |   |
|                  | 2H |                 |                  |      |   |
|                  | 2I |                 |                  |      |   |
|                  | 2J |                 |                  |      |   |
|                  | 2K |                 |                  |      |   |

**FOREIGN PATENT DOCUMENTS**

|  |    | DOCUMENT NUMBER | PUBLICATION DATE | NAME OF PATENTEE OR APPLICANT | Pages/Columns/Lines Where Relevant Passages/Figures Appear | Check if Translation attached |
|--|----|-----------------|------------------|-------------------------------|--|-------------------------------|
|  | 2L |                 |                  |                               |  |                               |
|  | 2M |                 |                  |                               |  |                               |
|  | 2N |                 |                  |                               |  |                               |
|  | 2O |                 |                  |                               |  |                               |
|  | 2P |                 |                  |                               |  |                               |

**OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)**

|            |    |  |
|------------|----|--|
| <i>mtt</i> | 2Q | Kwiat, Paul G. et al., "Ultrabright Source of Polarization-entangled Photons," Physical Review A, Vol. 60, No. 2, Pages R 773-776 (August 1999).                         |
| <i>mtt</i> | 2R | O'Brien, J.L. et al., "Demonstration of an all-optical quantum-controlled-NOT gate," Nature, Vol. 426, Pages 264-267 (November 20, 2003).                                |
| <i>mtt</i> | 2S | Pan, Jian-Wei et al., "Experimental Demonstration of Four-Photon Entanglement and High-Fidelity Teleportation," Physical Review Letters, Vol. 86, No. 20 (May 14, 2001). |

EXAMINER

**NAI T. TRAN**

DATE CONSIDERED

**2/29/06**

**PATENT APPLICATION**

Sheet 3 of 4

|   |  |                                     |                  |
|---|--|-------------------------------------|------------------|
| <b>FORM PTO-1449</b><br><br><b>LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT</b><br><br>(Use several sheets if necessary) | ATTY. DOCKET NO.<br><b>200311116-1</b> | APPLICATION NO.<br><b>10/734713</b> | CONFIRMATION NO. |
| APPLICANT<br><b>Raymond G. Beausoleil et al.</b>  |  |                                     |                  |
| FILING DATE<br><b>12/12/2003</b>  |  | GROUP <b>Art Unit 2129</b>          |                  |

**REFERENCE DESIGNATION                      U.S. PATENT DOCUMENTS**

| EXAMINER INITIAL | DOCUMENT NUMBER | PUBLICATION DATE | NAME | Pages, Columns, Lines Where Relevant Passages or Figures Appear |
|------------------|-----------------|------------------|------|---|
|                  | 3A              |                  |      |   |
|                  | 3B              |                  |      |   |
|                  | 3C              |                  |      |   |
|                  | 3D              |                  |      |   |
|                  | 3E              |                  |      |   |
|                  | 3F              |                  |      |   |
|                  | 3G              |                  |      |   |
|                  | 3H              |                  |      |   |
|                  | 3I              |                  |      |   |
|                  | 3J              |                  |      |   |
|                  | 3K              |                  |      |   |

**FOREIGN PATENT DOCUMENTS**

| DOCUMENT NUMBER | PUBLICATION DATE | NAME OF PATENTEE OR APPLICANT | Pages/Columns/Lines Where Relevant Passages/Figures Appear | Check if Translation attached |
|-----------------|------------------|-------------------------------|--|-------------------------------|
| 3L              |                  |                               |  |                               |
| 3M              |                  |                               |  |                               |
| 3N              |                  |                               |  |                               |
| 3O              |                  |                               |  |                               |
| 3P              |                  |                               |  |                               |

**OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)**

|            |    |   |
|------------|----|---|
| <i>mtt</i> | 3Q | Pan, Jian-Wei et al., "Entanglement purification for Quantum Communication," Nature, Vol. 410, Pages 1067-1070 (April 26, 2001).                                      |
| <i>mtt</i> | 3R | Tanzilli, S. et al., "Highly efficient photon-pair source using periodically poled lithium niobate waveguide," Electronics Letters, Vol. 37, No. 1 (January 4, 2001). |
| <i>mtt</i> | 3S | Pittman, T.B. et al., "Probabilistic quantum logic operations using polarizing beam splitters," Physical Review A, Vol. 64, Pages 062311-1 to 062311-9 (2001).        |

EXAMINER

**NAI T. TRAFF**

DATE CONSIDERED

**2/28/06**

## PATENT APPLICATION

Sheet 4 of 4

FORM PTO-1449

LIST OF PATENTS AND PUBLICATIONS FOR  
APPLICANT'S INFORMATION DISCLOSURE  
STATEMENT

(Use several sheets if necessary)

ATTY. DOCKET NO.

200311116-1

APPLICATION NO.

10/734713

CONFIRMATION NO

APPLICANT

Raymond G. Beausoleil et al.

FILING DATE

12/12/2003

GROUP

Art Unit  
2129

## REFERENCE DESIGNATION

## U.S. PATENT DOCUMENTS

| EXAMINER<br>INITIAL |    | DOCUMENT<br>NUMBER | PUBLICATION<br>DATE | NAME | Pages, Columns, Lines Where<br>Relevant Passages or Figures Appear |
|---------------------|----|--------------------|---------------------|------|--|
|                     | 4A |                    |                     |      |  |
|                     | 4B |                    |                     |      |  |
|                     | 4C |                    |                     |      |  |
|                     | 4D |                    |                     |      |  |
|                     | 4E |                    |                     |      |  |
|                     | 4F |                    |                     |      |  |
|                     | 4G |                    |                     |      |  |
|                     | 4H |                    |                     |      |  |
|                     | 4I |                    |                     |      |  |
|                     | 4J |                    |                     |      |  |
|                     | 4K |                    |                     |      |  |

## FOREIGN PATENT DOCUMENTS

|  |    | DOCUMENT<br>NUMBER | PUBLICATION<br>DATE | NAME OF PATENTEE<br>OR APPLICANT | Pages/Columns/Lines Where<br>Relevant Passages/Figures Appear | Check if<br>Translation<br>attached |
|--|----|--------------------|---------------------|----------------------------------|---|-------------------------------------|
|  | 4L |                    |                     |                                  |   |                                     |
|  | 4M |                    |                     |                                  |   |                                     |
|  | 4N |                    |                     |                                  |   |                                     |
|  | 4O |                    |                     |                                  |   |                                     |
|  | 4P |                    |                     |                                  |   |                                     |

## OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

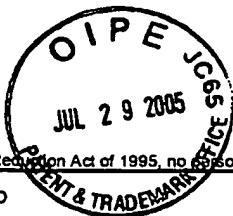
|            |    |  |
|------------|----|--|
| <u>mtt</u> | 4Q | Pittman, T.B. et al., "Experimental controlled-NOT logic gate for single photons in the coincidence basis," Physical Review A, Vol. 68, Pages 032316-1 to 032316-4 (2003). |
| <u>mtt</u> | 4R | Zhang et al., "Reduced Entanglements for Quantum Games," Pages 1-27 (July 31, 2003).   |
|            | 4S |  |

EXAMINER

MAI T. TRAN

DATE CONSIDERED

2/28/06



PTO/SB/08B (08-03)

Approved for use through 07/31/2006. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

|                        |                  |
|------------------------|------------------|
| Application Number     | 10/734,713       |
| Filing Date            | 12/12/2003       |
| First Named Inventor   | Beausoleil et al |
| Art Unit               | 2129             |
| Examiner Name          | MAI T. TRAN      |
| Attorney Docket Number | 200311116-1      |

Sheet 1 of 1

**NON PATENT LITERATURE DOCUMENTS**

| Examiner<br>Initials* | Cite<br>No. <sup>1</sup> | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T <sup>2</sup> |
|-----------------------|--------------------------|---|----------------|
| mtt                   |                          | BENJAMIN, S. C. ET AL - "Multiplayer Quantum Games" - Physical Review A - vol 64 no 030301 - 08/13/2001   |                |
| mtt                   |                          | HUBERMAN, B. A. ET AL - "Quantum Solution of Coordination Problems" - Online! - June 12, 2003   |                |
| mtt                   |                          | DU, J ET AL - "Entanglement Enhanced Multiplayer Quantum Games" - Physics Letters A - vol 302 no 5-6 - 09/30/2002 - pgs 229-233   |                |
| mtt                   |                          | AKIHISA, TOMITA - "Complete Bell State Measurement With Controlled Photon Absorption And Quantum Interface" - Online! - June 21, 2000   |                |
| mtt                   |                          | SINGH, S. K. - "Characterizing The Combinatorics Of Distributed EPR Pairs For Multi-Partite Entanglement" - Online! - January 1, 2004   |                |
|                       |                          |   |                |
|                       |                          |   |                |
|                       |                          |   |                |
|                       |                          |   |                |
|                       |                          |   |                |

|                       |  |                    |         |
|-----------------------|--|--------------------|---------|
| Examiner<br>Signature |  | Date<br>Considered | 2/28/06 |
|-----------------------|--|--------------------|---------|

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.